

ABSTRACT

Disclosed are compounds that include two or more haptens conjugated by a spacer or a carrier. The haptens may include diethylenetriaminepentaacetate (DTPA), histimine-succinyl-glutamine (HSG), or combinations of DTPA and HSG. The compound also includes an effector molecule which may be conjugated to one or more of the haptens, the spacer/carrier, or both. The effector molecule may be conjugated by a number of linkages including an ester linkage, an imino linkage, an amino linkage, a sulfide linkage, a thiosemicarbazone linkage, a semicarbazone linkage, an oxime linkage, an ether linkage, or combinations of these linkages. Also disclosed are methods of synthesizing the compounds and/or precursors of the compounds.